

## CLAIMS

What is claimed is:

- 1 1. A method comprising:  
2 receiving a code segment having a plurality of instructions, the code segment having an  
3 outer scope and a number of inner scopes, wherein the plurality of instructions comprise a  
4 number of pointers, wherein at least one of the number of pointers is restricted; and  
5 determining, within one of the number of inner scopes, whether at least two pointers of  
6 the number of pointers are aliases.
- 1 2. The method of claim 1, comprising determining a base pointer for each pointer of  
2 the number of pointers.
- 1 3. The method of claim 2, wherein the determining a base pointer for each pointer of  
2 the number of pointers comprises:  
3 grouping pointers together upon determining that the pointers are copied to a  
4 pointer that is not a restricted pointer.
- 1 4. The method of claim 3, wherein there is no grouping of pointers when the pointers  
2 have distinct base pointers.
- 1 5. The method of claim 3, comprising for each instruction of the plurality of  
2 instructions that accesses a pointer, determining which at least one restricted pointer is  
3 within the scope of the pointer when the pointer is accessed.
- 1 6. The method of claim 4, wherein the determining, within one of the number of  
2 inner scopes, whether at least two pointers of the number of pointers are aliases is based  
3 on the base pointer for each of the number of pointers.

1 7. The method of claim 3, wherein the determining, within one of the number of  
2 inner scopes, whether at least two pointers of the number of pointers are aliases is based  
3 on, for each instruction of the plurality of instructions that accesses the pointer, which at  
4 least one restricted pointer is within the scope of the pointer, when the pointer is accessed.

1 8. A method comprising:  
2 receiving a code segment having a plurality of instructions, wherein the plurality  
3 of instructions comprise a number of pointers, wherein at least one of the number of  
4 pointers is restricted, and wherein the at least one restricted pointer is in-scope or out-of-  
5 scope; and  
6 determining whether at least two pointers of the number of pointers are aliases  
7 when each pointer of the at least two pointers is out-of-scope relative to the other pointers  
8 of the at least two pointers.

1 9. The method of claim 8 comprising determining a base pointer for each pointer of  
2 the number of pointers.

1 10. The method of claim 9, comprising determining, for each pointer of the number of  
2 pointers, whether each at least one restricted pointer is in-scope when the pointer of the  
3 number of pointers is accessed.

1 11. The method of claim 10 wherein the determining whether at least two pointers of  
2 the number of pointers are aliases is based on determining a base pointer for each pointer  
3 of the number of pointers.

1 12. The method of claim 10 wherein the determining whether at least two pointers of  
2 the number of pointers are aliases is based on determining a base pointer for each pointer  
3 of the number of pointers, and on determining for each pointer of the number of pointers  
4 whether each at least one restricted pointer is in-scope when the pointer is accessed.

1 13. A system comprising:

2 a memory unit to include a code segment having a plurality of instructions, the  
3 code segment having an outer scope and a number of inner scopes, wherein the plurality  
4 of instructions comprise a number of pointers, wherein at least one of the number of  
5 pointers is restricted; and

6 a compiler unit coupled to the memory, the compiler unit to determine within one  
7 of the number of inner scopes, whether at least two pointers of the number of pointers are  
8 aliases.

1 14. The system of claim 13, wherein the compiler unit is to determine a base pointer  
2 for each pointer of the number of pointers.

1 15. The system of claim 14, wherein the compiler unit is to determine, for each  
2 instruction of the plurality of instructions that accesses a pointer, which at least one  
3 restricted pointer is within the scope of the pointer when the pointer is accessed.

1 16. The system of claim 15, wherein the compiler unit is to determine, within one of  
2 the number of inner scopes, whether at least two pointers of the number of pointers are  
3 aliases based on, for each instruction of the plurality of instructions that accesses a  
4 pointer, which of the restricted pointers is within the scope of the pointer when the pointer  
5 is accessed.

1 17. A machine-readable medium that provides instructions, which when executed by a  
2 machine, cause said machine to perform operations comprising:  
3 receiving a code segment having a plurality of instructions, the code segment having an  
4 outer scope and a number of inner scopes, wherein the plurality of instructions comprise a  
5 number of pointers, wherein at least one of the number of pointers is restricted; and  
6 determining, within one of the number of inner scopes, whether at least two pointers of  
7 the number of pointers are aliases.

1 18. The machine-readable medium of claim 17, comprising determining a base  
2 pointer for each pointer of the number of pointers.

1 19. The machine-readable medium of claim 18, comprising for each instruction of the  
2 plurality of instructions that accesses a pointer, determining which at least one restricted  
3 pointer is within the scope of the pointer when the pointer is accessed.

1 20. The machine-readable medium of claim 19, wherein the determining, within one  
2 of the number of inner scopes, whether at least two pointers of the number of pointers are  
3 aliases is based on the base pointer for each of the number of pointers.

1 21. The machine-readable medium of claim 19, wherein the determining, within one  
2 of the number of inner scopes, whether at least two pointers of the number of pointers are  
3 aliases is based on, for each instruction of the plurality of instructions that accesses the  
4 pointer, which at least one restricted pointer is within the scope of the pointer, when the  
5 pointer is accessed.

1 22. A machine-readable medium that provides instructions, which when executed by a  
2 machine, cause said machine to perform operations comprising:

3 receiving a code segment having a plurality of instructions, wherein the plurality  
4 of instructions comprise a number of pointers, wherein at least one of the number of  
5 pointers is restricted, and wherein the at least one restricted pointer is in-scope or out-of-  
6 scope; and

7 determining whether at least two pointers of the number of pointers are aliases  
8 when each pointer of the at least two pointers is out-of-scope relative to other pointers of  
9 the at least two pointers.

1 23. The machine-readable medium of claim 22, comprising determining a base  
2 pointer for each pointer of the number of pointers.

1 24. The machine-readable medium of claim 23, comprising determining, for each  
2 pointer of the number of pointers, whether each at least one restricted pointer is in-scope  
3 when the pointer of the number of pointers is accessed.

1 25. The machine-readable medium of claim 24, wherein the determining, within one  
2 of the number of inner scopes, whether at least two pointers of the number of pointers are  
3 aliases is based on the base pointer for each of the number of pointers.

1 26. The machine-readable medium of claim 24, wherein the determining whether at  
2 least two pointers of the number of pointers are aliases is based on determining a base  
3 pointer for each pointer of the number of pointers, and on determining for each pointer of  
4 the number of pointers whether each at least one restricted pointer is in-scope when the  
5 pointer is accessed.